CLAIMS

We claim:

1. In a non-solid structural polyurethane adhesive composition comprising a polyurethane prepolymer reaction product of a polyisocyanate and a polyol composition and a curative for isocyanate groups, the improvement which comprises a polyurethane prepolymer reaction product consisting essentially of at least 80 wt% perfect prepolymers and less than 2 wt% free polyisocyanate monomer.

2. The structural adhesive of Claim 1 in which the polyurethane prepolymer reaction product consists essentially of at least 90 wt% perfect prepolymers.

3. The structural adhesive of Claim 1 in which the polyurethane prepolymer reaction product consists essentially of less than 0.5 wt% free polyisocyanate monomer.

4. The structural adhesive of Claim 1 in which the polyisocyanate is hexamethylene diisocyanate, phenylene diisocyanate, toluene diisocyanate (TDI) 4,4'-diphenyl-methane diisocyanate (MDI), isophorone diisocyanate (IPDI) or bis-(4-isocyanatocyclohexyl) methane.

5. The structural adhesive of Claim 1 in which the polyol is a polyether polyol or a polyester polyol.

6. The structural adhesive of Claim 5 in which the polyol is a polyether polyol or a polyester polyol.

11. A method for adhesively joining or sealing two substrates using a structural polyurethane adhesive composition which comprises applying onto a substrate the non-solid structural polyurethane adhesive composition of Claim 1, and contacting the adhesive composition disposed on the substrate to a second substrate such that a bond is formed.

12. The method of Claim 11 in which the polyurethane prepolymer reaction product consists essentially of at least 90 wt% perfect prepolymers.

13. The method of Claim 11 in which the polyurethane prepolymer reaction product consists essentially of less than 0.5 wt% free polyisocyanate monomer.

14. The method of Claim 11 in which the polyisocyanate is hexamethylene diisocyanate, phenylene diisocyanate, toluene diisocyanate (TDI), 4,4'-diphenylmethane diisocyanate (MDI), isophorone diisocyanate (IPDI) or bis-(4-isocyanatocyclohexyl) methane.

15. The method of Claim 11 in which the polyol is a polyether polyol or a polyester polyol.

16. The method of Claim 15 in which the polyol is a polyether polyol or a polyester polyol.